

City of Cincinnati



Interdepartmental
Correspondence Sheet

Date: June 27, 2007

To: Mayor and Members of City Council

From: Milton Dohoney, Jr., City Manager

200700775

Subject: **2005/2006 ANNUAL BRIDGE CONDITION REPORT**

Executive Summary

As required by state law, I submit the 2005/2006 Annual Bridge Condition Report for bridges within the City of Cincinnati. This report:

- Indicates that all required bridges were inspected following state established inspection procedures
- Notes that the complete 2005/2006 Annual Bridge Condition Report, including the six-year plans for both City and County bridges and the inspection reports for all 287 inspected bridges, is available for review in the Clerk of Council's office
- Establishes the current weighted average bridge ratings for City and County bridges at 7.11 and 6.47, respectively, meeting the program goal of maintaining a weighted average rating of 6 (satisfactory condition) or better
- Points out that the relatively high weighted average bridge rating for City bridges results primarily from the addition of new Fort Washington Way and Central Riverfront Street Grid bridges and that the overall rating will decrease as these bridges age
- Identifies the need to continue capital and operating fund investment in City bridges to ensure the continued safety of the traveling public
- Cautions that funding needs will increase as Fort Washington Way and Central Riverfront Street Grid bridges age, as these new bridges represent a 40 percent increase in the total bridge deck area maintained with City bridge funds
- Provides a list of all bridge projects under construction in 2006 and projects that will go to construction in the spring of 2007
- Provides a list of current and planned major bridge projects

Introduction

In accordance with the Ohio Revised Code, the Department of Transportation and Engineering (DOTE) submits the 2005/2006 Annual Bridge Inspection Report for bridges within the City of Cincinnati. Beginning in the fall of 2005, DOTE personnel inspected and rated a total of 287 bridges. The inspections and ratings were performed in accordance with national and state standards and guidelines.

Of the 287 bridges inspected, 136 are maintained by the DOTE. These 136 bridges are divided

into two main categories: City bridges and County bridges. There are 69 City bridges, which include all City-owned vehicular and pedestrian bridges maintained by the DOTE except those bridges in the skywalk system. There are also 67 County bridges that support either U.S. or Ohio State Routes or support other improved roads that are of general and public utility running into or through Cincinnati that are under the jurisdiction of the County Engineer. DOTE personnel inspect and maintain these 67 County bridges by contractual agreement with Hamilton County. Railroad and Private bridges are inspected by DOTE personnel for safety, but these bridges are maintained by their individual owners. Interstate bridges are inspected and maintained by the Ohio Department of Transportation (ODOT) and are not included in this report.

Bridge Program Function and Performance Measures

The mission of the Bridge Program is to ensure the safety and mobility of the traveling public by preserving the structural integrity of all bridges that the DOTE maintains. During the annual inspections, DOTE personnel rate the condition of all bridges from 0, "Failed" condition, to 9, "Excellent" condition. DOTE's goal is to maintain a Weighted Average Bridge Rating of 6, a "Satisfactory" condition, or better for the bridges that the DOTE maintains. The Weighted Average Bridge Rating is an adjusted average condition rating that is based on the size of the bridge. In the weighted average, larger bridges are given up to five times the importance of smaller bridges. A 6 rating indicates a bridge with no structural deficiencies.

The Weighted Average Bridge Rating for both City and County bridges has shown general improvement over the last thirteen years. The current weighted rating for City bridges is 7.11, and for County bridges within the City limits is 6.47. In 1988, the Weighted Average Bridge Ratings for City and County Bridges were 5.55 and 5.36 respectively. The improvement of the condition of both City and County bridges is a result of an aggressive rehabilitation program implemented in accordance with the Infrastructure (Smale) Commission Report, which was approved by City Council in 1988, and the successful leveraging of state and federal highway construction funds.

Current Bridge Conditions

Of the 136 bridges maintained by the DOTE, 125 are rated in "Fair" or better condition (condition ratings of 5 or above). A rating of 5 indicates that all primary structural elements are sound. However, secondary members such as bracing, that do not directly carry traffic loads, may have significant deterioration.

There is one County bridge rated in "Serious" condition (condition rating of 3). This bridge is the Eighth Street Viaduct. The Eighth Street Viaduct is scheduled for rehabilitation beginning in 2008. Construction is expected to last two years and will necessitate the complete closure of the viaduct during the first six months of construction. Shoring was installed under the Eighth Street Viaduct to maintain its safe operation until the 2008 rehabilitation project begins.

There are two City bridges rated in "Poor" condition (condition rating of 4). One of these two bridges is the Waldvogel (Sixth Street) Viaduct. DOTE, through a directed consultant, is preparing plans to replace the Waldvogel Viaduct. The proposed project was presented to the local community at a series of three community meetings and one open house meeting in spring 2005. The proposed project was well received. Roadway construction is scheduled for 2010, immediately following the Eighth Street Viaduct Project. Construction is expected to last two years. The project will replace the existing, deteriorated, half-mile long structure with a

combination of roadway on grade and ramp bridges. DOTE has secured \$39.2 million or 80 percent of the estimated \$49 million cost for right-of-way acquisition and construction of the replacement project from a combination of Federal discretionary funds, ODOT Local Major Bridge project funds, and OKI funds.

The second City bridge rated in "Poor" condition is the Freeman Avenue Bridge over the Sixth Street Expressway. The condition rating of the Freeman Avenue Bridge was lowered from "Good" condition to "Poor" condition during the previous inspection cycle because fatigue cracks were observed in some welds. ODOT removed and replaced cracked welds running longitudinally along the beams and removed welds running transversely with the beams. During this inspection cycle, additional cracked welds were observed. DOTE has hired a directed consultant to perform an arms-length inspection of all of the welds on the structure. This structure will most likely remain rated in "Poor" condition until funds are available to replace the superstructure. In its present condition, the bridge can safely support legal highway loads.

There are six County bridges rate in "Poor" condition. These bridges are the Kennedy Avenue Bridge over Conrail, the Marburg Avenue Bridge over N & W Railroad, the Sixth Street Expressway Bridges (eastbound and westbound) over Harriet Street, and the Sixth Street Expressway Bridges (eastbound and westbound) over the private drive west of Freeman Avenue. Replacement plans for the Kennedy Avenue and the Marburg Avenue Bridges are under development. ODOT performed repairs to the Sixth Street Expressway bridges by drilling out the ends of the cracks in the steel beams to prevent the cracks from propagating. Those bridges will most likely remain rated "Poor" until funds become available to replace the superstructures. In their present conditions, the bridges can safely support legal highway loads.

Investment in our Bridge Infrastructure

Inspection, maintenance, repair, and replacement of City bridges is funded with both operating and capital funds. The Infrastructure Commission Report recommended the annual investment of \$1,000,000 in Operating funds and \$2,800,000 in Capital funds to maintain the city's bridge infrastructure. This recommendation was in 1988 dollars to maintain a deck area of approximately 1,000,000 square feet. However, because the current weighted average bridge rating for City bridges is substantially above the program goal of maintaining a rating of 6 ("Satisfactory" condition) or better and due to increased demand for limited funding, the 2007 Operating and Capital funding requests for City bridges is only \$171,000 and \$1,100,000 respectively (excluding funding for the Waldvogel Viaduct and other special projects). At this reduced funding level, DOTE can continue to achieve the program goal of maintaining a weighted average bridge rating of 6 or better for the near future. However, a general decline in the condition of the bridges is expected. The current rating of 7.11 is temporary, resulting from the addition of new bridges built with Fort Washington Way and the Central Riverfront Street Grid. These new bridges represent a 40% increase in the City bridge deck area. Without these newer bridges, the weighted average bridge rating for City bridges would be 6.60. The weighted average bridge rating for City bridges will decrease as these newer bridges (and the new bridges that continue to be added to the Central Riverfront Street Grid) age. Also, when these newer bridges age to the point of requiring significant maintenance, additional funding will be required to maintain a weighted average bridge rating of 6 for City bridges.

DOTE receives \$1,000,000 annually from Hamilton County to fund the inspection, maintenance, repair, and replacement of County bridges within the City. Approximately half of the County bridges that the DOTE maintains are located on U.S. or Ohio State routes. Consequently, there

are greater possibilities to leverage County funds with outside funding sources such as Federal or State Capital Improvement Project (SCIP) funds for use on County bridge projects than there are possibilities to leverage City funds with outside sources for use on City bridge projects.

2006/2007 Bridge Construction Project Summary

The following is a list of construction activity on City and County bridge projects that occurred in 2006 or will occur in early in 2007:

- Second Street over Transit Center – Joint Repairs (City bridge in Central Riverfront)
- Elm and Main Street Cable Stayed Pedestrian Bridges – Bolted Connection Repairs (City bridges over Fort Washington Way)
- City Bridge Railing Repairs (Various City bridges)
- Freeman Avenue Bridge over Sixth Street Expressway – In Depth Inspection and Repairs (City bridge in Queensgate)
- Broadway Pedestrian Plaza Overhead at US Bank Arena and Great American Ballpark Bird Exclusion Netting (City bridge in the Central Business District)
- Waldvogel Viaduct Structural Repairs Contract (City bridge in Lower Price Hill)
- Rosa Parks Street (Vine Street) Bridge – Grating Repairs (City bridge in Central Riverfront District)
- Lincoln Avenue Bridge – Deck Overlay (City bridge in Walnut Hills)
- City Bridge Maintenance Contract (Various City bridges)
- Burns Street Ramp – Bridge Replacement (City bridge in Lower Price Hill)
- Eighth Street Viaduct – Shoring (County bridge in Queensgate)
- Montgomery Road Arch – Railing Repair (County bridge in Pleasant Ridge)
- Norwood Lateral Bridges over Paddock and Reading Roads – Deck Overlays (County bridges in Bond Hill)
- Sixth Street Expressway Bridges (eastbound and westbound) over Mill Creek and Railroad, Harriet Street, Private Drive West of Freeman, Linn Street and Railroad and Gest Street – Miscellaneous Repairs (County bridges in Queensgate)
- Western Hills Viaduct Maintenance Contract – Asphalt Overlay, Beam Supports (County bridge in Camp Washington/Queensgate)
- Western Hills Viaduct Safety Improvements – Impact Attenuator, Concrete Barrier and Guardrail Work (County bridge in South Fairmount)

Additional details concerning these projects can be found in the complete 2005/2006 Annual Bridge Condition Report, which is available for review in the Clerk of Council's office.

Major Bridge Projects (Current and Planned)

The following is a list of major construction projects involving City and County bridges that are currently taking place or are in the planning stage:

- Eighth Street Viaduct Reconstruction and Eighth Street Bridge Replacement (County bridges in Queensgate and Lower Price Hill)
- Waldvogel Memorial Viaduct Replacement (City bridge in Lower Price Hill)
- Western Hills Viaduct Rehabilitation/Replacement (County bridge in Queensgate, West End, Camp Washington, and South Fairmount)
- Central Parkway over Rapid Transit Tubes – Walnut to Draper and south of Hopple (City bridges in Over-the-Rhine/West End, and CUF/Camp Washington)

Additional details concerning these projects can be found in the complete 2005/2006 Annual Bridge Condition Report, which is available for review in the Clerk of Councils office.

Complete 2005/2006 Annual Bridge Condition Report

The complete 2005/2006 Annual Bridge Condition Report, including the six year plans for both City and County bridges and the inspection reports for all 287 inspected bridges, is available for review in the Clerk of Councils office.

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